

## WHAT IS CLAIMED IS:

1. A method for performing resource discovery in a network having multiple subnets and wherein inter-subnet discovery agents installed on nodes within the multiple subnets support inter-subnet resource discovery, the method comprising:

5 designating, within a first subnet, a first inter-subnet discovery agent on a first node as an active discovery agent;  
 discovering, by the first inter-subnet discovery agent, active discovery agents on neighboring subnets in the network; and  
 propagating, by the first node containing the active discovery agent, an inter-  
 10 subnet resource discovery search request to the active discovery agents on neighboring subnets.

2. The method of claim 1 wherein the resource discovery search request is a network device discovery request.

3. The method of claim 2 wherein the network device discovery request is a request to identify printers in the network.

4. The method of claim 1 wherein the discovering step includes:  
 20 receiving, by the first node containing the first active discovery agent, from a second node containing an active discovery agent on a neighboring subnet, information comprising a network address of the second node containing the active discovery agent; and

25 storing, by the first node, the information in a list identifying neighboring active discovery agents.

5. The method of claim 4 further comprising the steps of:

receiving, by the first node containing the active discovery agent, a request to provide discovery information for a discoverable resource and in response performing, during the propagating step, the sub-steps of:

passing the request to the active discovery agent on the first node;

searching, by the active discovery agent on the first node, the list of neighboring active discovery agents; and

35 issuing, by the first node, a search request identifying a resource discovery requester to at least one neighboring active discovery agent in the list identifying neighboring active discovery agents.

6. The method of claim 5 further comprising the step of:

40 transmitting, by the first node containing the active discovery agent, to the resource discovery requester a response including resource discovery information corresponding to the discoverable resource.

7. The method of claim 4 further comprising:

45 publishing, by the node, address information for neighboring active discovery agents into a network directory service.

8. The method of claim 1 wherein the node comprises a set of device discovery agents, further comprising the step of:

determining, by the set of device discovery agents, discovery information for discoverable resources present on the subnet.

9. The method of claim 1 wherein the designating step comprises: automatically selecting, as the active discovery agent, the first inter-subnet discovery agent from a set of installed discovery agents in the first subnet according to a criterion.

10. The method of claim 1 wherein the designating step comprises: manually selecting, as the active discovery agent, the first inter-subnet discovery agent from a set of installed discovery agents in the first subnet.

11. A computer-readable medium having computer-executable instructions for facilitating performing resource discovery in a network having multiple subnets and wherein inter-subnet discovery agents installed on nodes within the multiple subnets support inter-subnet resource discovery, the computer-readable medium having

5 computer-executable instructions facilitating performing the steps of:

designating, within a first subnet, a first inter-subnet discovery agent on a first node as an active discovery agent;

discovering, by the first inter-subnet discovery agent, active discovery agents on neighboring subnets in the network; and

10 propagating, by the first node containing the active discovery agent, an inter-subnet resource discovery search request to the active discovery agents on neighboring subnets.

12. The computer-readable medium of claim 11 wherein the resource discovery search request is a network device discovery request.

13. The computer-readable medium of claim 12 wherein the network device discovery request is a request to identify printers in the network.

14. The computer-readable medium of claim 11 wherein the discovering step includes:

receiving, by the first node containing the first active discovery agent, from a second node containing an active discovery agent on a neighboring subnet, information comprising a network address of the second node containing the active discovery agent; and

25 storing, by the first node, the information in a list identifying neighboring active discovery agents.

15. The computer-readable medium of claim 14 further comprising the steps of:

receiving, by the first node containing the active discovery agent, a request to provide discovery information for a discoverable resource and in response performing, during the propagating step, the sub-steps of:

passing the request to the active discovery agent on the first node;

35 searching, by the active discovery agent on the first node, the list of neighboring active discovery agents; and

issuing, by the first node, a search request identifying a resource discovery requester to at least one neighboring active discovery agent in the list identifying neighboring active discovery agents.

16. The computer-readable medium of claim 15 further comprising the step of: transmitting, by the first node containing the active discovery agent, to the resource discovery requester a response including resource discovery information corresponding to the discoverable resource.

17. The computer-readable medium of claim 14 further comprising:  
publishing, by the node, address information for neighboring active discovery  
agents into a network directory service.

18. The computer-readable medium of claim 11 wherein the node comprises a  
set of device discovery agents, further comprising the step of:  
determining, by the set of device discovery agents, discovery information for  
discoverable resources present on the subnet.

19. The computer-readable medium of claim 11 wherein the designating step  
comprises:  
automatically selecting, as the active discovery agent, the first inter-subnet  
discovery agent from a set of installed discovery agents in the first subnet according to a  
criterion.

20. The computer-readable medium of claim 11 wherein the designating step  
comprises:  
manually selecting, as the active discovery agent, the first inter-subnet discovery  
agent from a set of installed discovery agents in the first subnet.

21. A resource discovery framework for resource discovery in a network including multiple subnets and discoverable networked resources, the framework comprising:

an active discovery agent designated for ones of the multiple subnets for identifying active discovery agents on neighboring subnets within the network;

a selection mechanism for designating the active discovery agent within each subnet; and

a request propagation mechanism by which nodes containing the active discovery agents propagate an inter-subnet resource discovery search request to active discovery agents on neighboring subnets.

22. The resource discovery framework of claim 21 wherein a list is maintained by each active discovery agent identifying the active discovery agent for neighboring subnets.

23. The resource discovery framework of claim 22, further including: a directory service in communication with the active discovery agents in the network, the directory service including information corresponding to the lists maintained by the active agents.

24. A system for automating network-wide resource discovery in networks having multiple subnets:

a set of inter-subnet discovery agents installed on nodes within the multiple subnets support inter-subnet resource discovery; and

a first inter-subnet discovery agent on a first node designated as an active discovery agent, the first inter-subnet discovery agent including procedures for facilitating:

discovering active discovery agents on neighboring subnets in the network; and propagating an inter-subnet resource discovery search request to the active discovery agents on neighboring subnets.

25. The system of claim 24 wherein the resource discovery search request is a network device discovery request.

26. The system of claim 25 wherein the network device discovery request is a request to identify printers in the network.

27. The system of claim 24 wherein the procedure for discovering active discovery agents facilitates:

receiving, by the first node containing the first active discovery agent, from a second node containing an active discovery agent on a neighboring subnet, information comprising a network address of the second node containing the active discovery agent; and

storing, by the first node, the information in a list identifying neighboring active discovery agents.

28. The system of claim 27 wherein the first inter-subnet discovery agent includes procedures that facilitate, in response to receiving a request to provide discovery information for a discoverable resource, generating a response by:

- 5           searching the list of neighboring active discovery agents; and
- issuing a search request identifying a resource discovery requester to at least one neighboring active discovery agent in the list identifying neighboring active discovery agents.

29. The system of claim 29 wherein the first inter-subnet discovery agent includes procedures that facilitate:

- 10           transmitting, by the first node, to the resource discovery requester a response including resource discovery information corresponding to the discoverable resource.

30. The system of claim 27 wherein the first node further comprises procedures facilitating publishing address information for neighboring active discovery agents, obtained by the first inter-subnet discovery agent, into a network directory service.

31. The system of claim 24 wherein the first node comprises a set of device discovery agents for determining discovery information for discoverable resources present on the subnet.